Environmental Assessment

BLM
High Desert District - Rawlins Field Office, Rawlins, Wyoming

GRMR Oil & Gas LLC

Bulleit Federal 13-9 Oil Well
In Carbon County, Wyoming

DOI-BLM-WY-D030-2016-0081-EA

BLM Lease Number: WYW-177789

July 2016

Prepared by:
U.S. Bureau of Land Management
High Desert District
Rawlins Field Office
1300 North Third Street
Rawlins, Wyoming 82301

Mission Statement

To sustain the health, diversity, and productivity of the public lands
for the use and enjoyment of present and future generations.

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ENVIRONMENTAL ASSESSMENT

EA NUMBER: DOI-BLM-WY-D030-2016-0081-EA

INTRODUCTION:

BLM Office: Rawlins Field Office **Lease Number**: WYW-177789

Proposed Action Title / Type: Bulleit Federal 13-9 Oil Well, Well Pad, and Access Road.
Applicant: GRMR Oil & Gas LLC

Location of Proposed Action: Township (T.) 13 North (N.), Range (R.) 90 West (W.), 6th Principal Meridian (P.M.), Section 13, NE¼SE¼, Carbon County, Wyoming

Purpose and Need for the Proposed Action:

Purpose:
This site-specific Environmental Assessment (EA) is being prepared in response to GRMR Oil and Gas LLC's (GRMR) Application for Permit to Drill (APD) an oil well, and discloses information which will allow the Authorized Officer to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of the action is to allow the lease holder to exercise their right to drill for, extract, remove, and market natural gas products in the above described location.

Need:
The need for the action is established by the Bureau of Land Management's (BLM) authority under the Minerals Leasing Act of 1920, as amended, the Mining and Minerals Policy Act of 1970, as amended, the Federal Land Policy and Management Act of 1976, as amended, the National Materials and Minerals Policy, Research and Development Act of 1980, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987, as amended.

Decision to be made:

The BLM will decide whether or not to issue an APD and, if so, under what Conditions of Approval.

Scoping and Issues:

External:
Upon receipt of an APD or Notice of Staking (NOS) for a proposed well/location, the APD/NOS is posted in the public room of the Rawlins Field Office (RFO) for a period of 30 days. During that time, the APD/NOS is available for public review and comment. The information required under 43 CFR 3162.3-1(g) for this APD was posted in the Bureau of Land Management (BLM) RFO public room on February 18th, 2016. The project was also entered into the National

Environmental Policy Act (NEPA) Register. To date, no public comments have been received for this proposal.

Internal:
An on-site inspection of the proposal was conducted on May 5th, 2016. A BLM interdisciplinary team reviewed the proposal and the following resources were found to have issues of concern that are addressed in this EA: air quality; climate change and greenhouse gasses; cultural and historic resources; wildlife resources including candidate, threatened, endangered, and sensitive species; noise; and soils. Other resources either were not present or the impacts were adequately addressed through the application of Standard Operating Procedures (SOPs), Best Management Practices (BMPs) and/or site-specific design features (see Appendix 1).

Resources considered, but not present or affected in such a manner as requiring in-depth analysis in this EA, include, but are not limited to:

Resource/Resource Use	**Approved Rawlins RMP FEIS Reference**
Areas of Critical Environmental Concern	3-88 to 3-89; 4-514 to 4-515; Appendix 22
Environmental Justice	3-77; 4-189 to 4-203
Hazardous Materials	Appendix 32
Invasive species	3-113 to 3-115; 4-370 to 4-389
Livestock	3-27 to 3-34; 4-69 to 4-82
Minerals	3-34 to 3-44; 4-83 to 4-111; 4-501
Off-Highway Vehicles	3-45; 4-113 to 4-125; Appendix 21
Paleontology	3-48 to 3-49; 4-126 to 4-140; 4-502; Appendix 30
Reclamation	3-44; Appendix 36
Recreation	3-51 to 3-58; 3-76; 4-141 to 4-188; 4-505; Appendix 37
Socioeconomics	3-59 to 3-85; 4-189 to 4-203; 4-508; Appendix 35
Special Designations and Management Areas	3-86 to 3-98: 4-204 to 4-356; 4- 512
Transportation	3-26; 3-100; 4-356 to 4-367; 4-522; Appendix 21
Vegetation	3-101 to 3-119; 4-369 to 4-389; 4-522; Appendix 19
Visual Resources	3-120 to 3-122; 4-391 to 4-406; 4-524; Appendix 25
Water Resources	3-123 to 3-137; 4-408 to 4-438; 4-525; Appendices 11, 13, and 32
Wild Horses	3-139 to 3-142; 4-439 to 4-449; 4-528; Appendix 12
Wilderness Study Areas	3-86 to 3-87; 4-204 to 4-207

PROPOSED ACTION AND ALTERNATIVES

Proposed Action:

The proposed action consists of the construction of a well pad and access road, and the drilling of an oil well, Bulleit Federal 13-9. The proposed well pad and access road would be located on private surface. The well would be drilled from a single well pad as a new well from private surface to federal mineral.

Access: Begin in Baggs, Wyoming. At the junction of Penland Street and State Highway 70, drive easterly approximately 11.3 miles to the junction of Highway 70 and County Road 561; turn left and proceed northeasterly approximately 1.1 miles to the junction of County Road 561 and County Road 501; turn left and proceed northeasterly approximately 3.1 miles to the junction of County Road 501 and an unmarked existing road to the west; turn left and proceed northwesterly approximately 0.2 miles; turn left and drive westerly for 0.7 miles; turn left and travel westerly, then northwesterly for 1.2 miles; turn left onto the proposed access road and drive westerly for 215 feet to the proposed well site.

Proposed Route: Approximately 215 feet of primary access road (0.25 acres) of new surface disturbance associated with the access road is expected (see Map 1). Adequate drainage structures would be constructed or installed. The travel-way would be at least 14 feet wide and would have an average width of 50 feet.

Well Site: The total disturbance area for the proposed well pad would be approximately **4.8 acres** for drilling operations. Should the well become productive, cut portions of the well site would be backfilled and the unused portions of the well site and soil stockpile sites would be stabilized and reseeded with native vegetation in accordance with the operator's reclamation plan. The well pad size would be reduced to approximately **1.3 acres.**

Location and type of water supply: Water for drilling the proposed well would be obtained from the City of Baggs, Wyoming, water well, SEO permit number U.W. 15173W. The water would be transported via truck by an approved commercial water hauler over the water haul route described in the APD and Surface Use Plan (SUP).

The submitted application, with SUP, Plan of Development (POD) and standard design features, contains a complete description of the proposed action. GRMR has agreed to follow all recommendations and site-specific design features that identified by the RFO interdisciplinary team. These documents are considered an integral part of the Environmental Assessment (EA) by reference. The APD file is located in the RFO, 1300 North Third Street, Rawlins, Wyoming.

Alternatives Including the No Action Alternative

The BLM interdisciplinary team, in review of the proposed action (as modified during onsite inspections, internal scoping, and subsequent review), identified no unresolved resource conflicts that would necessitate development of additional action alternatives.

No Action Alternative:

The only alternative considered would be to not approve the APD applications. This would be the "No Action" alternative. Under leasing provisions, the BLM has an obligation to allow mineral development if the environmental consequences are not irreversible or too severe. If the APD is not approved, the applicant is allowed to, and generally would, submit a new application that corrects any flaws in the original. The APD process is designed to overcome the "No Action" alternative situation by not accepting the APD or Plan of Development (POD) as complete, until all environmental impacts are either resolved or mitigated in the application and approval process.

Conformance with the Land Use Plan:

This Proposed Action is subject to the Record of Decision (ROD) and Approved Rawlins Resource Management Plan (RMP) and Final Environmental Impact Statement (FEIS), December 24, 2008, as amended. The Resource Management Plan was amended by *The Bureau of Land Management Casper, Kemmerer, Newcastle, Pinedale, Rawlins, and Rock Springs Field Offices Approved Resource Management Plan Amendment for Greater Sage-Grouse* (September 21, 2015). The Proposed Action is in conformance with the applicable LUP. Natural gas exploration and development are specifically provided for in the following LUP decisions:

> Minerals, page 2-20, Management Goal: "Manage mineral resources from available BLM-administered public lands and federal minerals while minimizing the impacts to the environment, public health and safety, and other resource values and uses."
>
> Management Objective 2: "Provide opportunities for exploration and development of conventional and unconventional oil and gas, coal, and other leasable minerals."
>
> Page 2-21, Management Actions, Oil and Gas: 1. "Surface disturbing activities will be intensively managed … and will be subject to reclamation practices (Appendix 36)…"

The BLM uses the RMP as a guidance document in its environmental review of leasing, exploration, and development of mineral resources. As a result of initial interdisciplinary environmental review of the proposed action, appropriate design features, best management practices (BMPs), and standard operating procedures (SOPs) were identified and would be applied if the APD is approved. The federal minerals leased to GRMR carries a contractual commitment to allow for development in accordance with the Lease Notice and stipulations of the lease.

The Rawlins RMP can be accessed at:
http://www.blm.gov/wy/st.en/programs/Planning/rmps/rawlins.html

Relationship to Statutes, Regulations, or Other Plans:

This EA is prepared in accordance with National Environmental Policy Act (NEPA) procedures, and is in compliance with all applicable laws and regulations passed subsequently, including

Council on Environmental Quality (CEQ) regulations (40 CFR, Parts 1500-1508); U.S. Department of Interior (DOI) Regulations for Implementation of the National Environmental Policy Act of 1969, as amended (43 CFR Part 46); DOI BLM NEPA Handbook, H-1790-1 (BLM January 2008); Guidelines for Assessing and Documenting Cumulative Impacts (BLM 1994); and the Departmental Manual (DM) part 516. This EA assesses the environmental impacts of the Proposed Action and serves to guide the decision-making process.

This EA was also prepared in accordance with the following regulations and guidance policies: Endangered Species Act of 1973, as amended (ESA); Federal Land Policy and Management Act of 1976 (FLPMA); National Historic Preservation Act of 1966, as amended; Wyoming Standards for Healthy Rangelands; Mineral Leasing Action of 1920, as amended; Clean Air Act, as amended; and the Clean Water Act. Section 7, consultation with the U.S. Fish and Wildlife Service (USFWS), in accordance with the ESA, was not required.

Onshore Oil and Gas Order No. 1 (43 CFR 3164.1) requires that an APD provide sufficient detail to permit a complete appraisal of the technical adequacy and environmental effects associated with the proposed project. The APD must be developed to conform with the provisions of the lease, including the lease stipulations, provide for safe operations, adequate protection of surface resources and uses, and other environmental components, and must also include adequate measures for reclamation of disturbed lands. If the APD is inadequate or incomplete, the applicant must modify or amend the APD and/or BLM can set forth design features that are necessary for the protection of surface resources, uses, and the environment and for the reclamation of the disturbed lands.

Note: This project does not fit any of the specified criteria allowing for Categorical Exclusion from NEPA analysis under Section 390 of the Energy Policy Act of 2005, 43 CFR 46.210 or 516 DM 11.9, and is therefore being analyzed herein.

AFFECTED ENVIRONMENT and ENVIRONMENTAL IMPACTS

The project is located within the area covered by the Atlantic Rim Natural Gas Field Development Project Final Environmental Impact Statement (AR FEIS), which was written to assess natural gas development. The ROD for this action was approved on March 23, 2007. The Proposed Action is an oil well and cannot be tiered to this EIS, however, the impacts of development are considered to be essentially the same, and therefore the impacts identified in the AR FEIS document will be referenced. The EIS can be viewed and downloaded at the following location: http://www.blm.gov/wy/st/en/info/NEPA/documents/rfo/atlantic_rim.html.

Environmental issues during scoping and review of the Proposed Action that warrant analysis and discussion are as follows:

Air quality: The basic framework for controlling air pollutants in the United States is mandated by the 1970 Clean Air Act (CAA) and its 1990 amendments, and the 1999 Regional Haze Regulations.

Following drilling and completion activities, emissions from production activities would exist throughout the life of the proposed wells. The first would be air pollutants resulting from the venting and flaring of natural gas from the proposed wells themselves. The venting and flaring of natural gas is limited to what is allowed by Notice to Lessees and Operators of Onshore Federal and Indian Oil and Gas Leases (NTL-4A). These emissions generally become greater and more frequent as the need to purge the wells of produced fluids increases towards the end of a well's life.

The Wyoming Department of Environmental Quality (DEQ) has air quality permitting requirements for existing, new, and modified oil and gas production units under the Wyoming Air Quality Standards and Regulations, Chapter 6, Section 2 (WAQSR). However, the proposed project is unlikely to trigger permitting requirements based on the quantity of emissions from each well. Since the project is located in the Concentrated Development Area (CDA) identified by the DEQ in Chapter 6, Section 2, *Permitting Guidance for Oil and Gas Production Facilities*, the operator is encouraged to apply presumptive Best Available Control Technology (BACT) for all sources of emissions associated with the proposed project. Application of BACT can include controls for flaring, completions, dehydration units, pneumatic pumps and controllers, and flashing emissions. Application of BACT would minimize both short-term and long-term impacts in the project vicinity since previous development has occurred and other active, producing wells are present in the immediate area.

The Wyoming Department of Environmental Quality (WDEQ) released the 2015 Annual Summary for the Wamsutter air quality monitoring site (http://www.wyvisnet.com/Data/Reports.aspx). Within this report, WDEQ identified zero days that exceeded the ambient air quality standards; all monitored values were within or below air quality standard limits. This is the most recent and available information the BLM has regarding air quality impacts within the RFO at this time. Further discussion on air quality can be found in the AR FEIS; RMP, p. 2-10 and Appendix 4.

Climate Change: Ongoing scientific research has identified the potential impacts of greenhouse gas (GHG) emissions (including carbon monoxide (CO), methane (CH_4), nitrous oxide (N_2O), water vapor, and several trace gases) on global climate.

In most of the BLM Rawlins Field Office area, mean annual temperatures have warmed 0.4 to 0.8 F° and mean annual precipitation has increased 0.1 to 0.3 inches per decade since 1976. In the western part of the BLM RFO, mean annual temperatures (AT) have warmed 0.25 to 0.4 F° per decade and mean annual precipitation (PPT) has decreased 0.3 to 0.6 inches per decade since 1976 (NOAA, 2005). For both parameters, varying rates of change have occurred, but overall, there have been increases in both AT and PPT. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHG are likely to accelerate the rate of climate change.

Greenhouse Gas Emissions: The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the assessment of climate change. The latest report is "Climate Change 2007," the IPCC Fourth Assessment Report (AR4) (IPCC 2007). In AR4, the IPCC concluded that warming of the climate system is unequivocal and most of the observed increase

in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations. The IPCC further concluded that, "continued greenhouse gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would very likely be larger than those observed during the 20th century."

The GHGs projected to be emitted by the project are CO2, CH4 and N2O. The atmospheric lifetimes for CO_2, CH_4 and N_2O are on the order of years (IPCC, 2007). Emissions of GHGs from any particular source become well-mixed throughout the global atmosphere. GHG emissions from all sources contribute to the global atmospheric burden of GHGs, and it is not possible to attribute a particular climate impact in any given region to GHG emissions from a particular source. It is possible to state only that GHG emissions produced by the Proposed Action and action alternatives would add to the global burden of GHGs and may therefore contribute to climate change impacts to the Affected Environment produced by world-wide emissions; these impacts may include those shown above.

The assessment of GHG emissions and climate change is in its formative phase. It is currently not feasible to know with certainty the net impacts from the Proposed Action on climate. When further information on the impacts to climate change is known, such information will be incorporated into the BLM's planning and NEPA documents as appropriate.

Cultural and Historic Resources: Cultural resources include prehistoric lithic scatters, open campsites and historic debris scatters common to the region. A Class III cultural resource inventory was performed for the proposed project area to locate historic properties that may be impacted by the project, in conformance with the National Historic Preservation Act (NHPA, 54 U.S.C. 306108) and implementing regulations at 36 CFR 800. More information about the cultural resources, including the historic trails, can be found in the AR FEIS Section 3.11 and 4.11 Cultural and Historical Resources, page 3-122 – 3-132 and pages 4-12 – 4-31.

A Class III cultural resource inventory was performed for the project in conformance with the NHPA. No historic properties that would be adversely impacted were identified during the inventory. Standard cultural resource design features that address buried discoveries apply and would minimize the potential for the loss or destruction of unanticipated historic properties should they be encountered during construction.

Wildlife: The project is located within a sagebrush steppe environment that is primarily utilized by mule deer, antelope, and other small animals, including rabbits, birds, and rodents. BLM Sensitive species that have the potential to inhabit the project area include four bat species: long-eared myotis, fringed myotis, spotted bat and Townsend's big-eared bat and eight bird species: loggerhead shrike, sage thrasher, Brewer's sparrow, sage sparrow, ferruginous hawk, burrowing owl, mountain plover, and Greater Sage-Grouse(GRSG). The GRSG is also a Wyoming Game and Fish Department Species of Greatest Conservation Need because of population declines and ongoing habitat loss; the proposed action is within a general habitat area. The proposed project also lies within mule deer crucial winter range and would remove habitat. More information on Fish, wildlife, and special status species are discussed in general in the AR FEIS Sections 3.7, 3.8, 4.7, and 4.8, pages 3-84 – 3-115 and pages 4-68 – 4-98.

Surface disturbance, including the loss of five acres of habitat, and disruptive activities during construction and operation, such as human presence, dust, and noise may displace or preclude wildlife use of disturbed areas. Displacement could increase both interspecific and intraspecific competition for resources, as the displaced individuals seek new areas with suitable habitat for breeding, nesting, or foraging. Wildlife sensitivity to these intrusions varies considerably with each animal species. After initial avoidance, some wildlife species may acclimate to the activity and begin to re-occupy areas previously avoided. This acclimation and re-occupation would be expected to occur following construction and drilling as the project moves into the production phase when less noise and human activity would take place.

All open vent stack equipment would be designed and constructed to prevent entry by birds and bats and to discourage perching. This design feature would prevent injury to both bats and birds that may use vents for roosting and nest building.

Noise: The Proposed Action would add noise from construction, drilling, completion, and production to the area. Noise associated with construction, drilling, completion, and producing a well, and can exceed 55 dBA. However, these noises are transient and short-term in nature, generally lasting less than 2 days for construction activities and 2-3 weeks for drilling and completion. Noise is further discussed in general in the AR FEIS, Section 3.15 and 4.15, pages 149 and pages 4-155 – 4-157.

Soils: A site specific reclamation plan has been submitted by the operator for each of the wells, their associated access road, and utility corridor describing the soils and their properties found in this project area. Impacts to soil would include increased surface water runoff and erosion. With application of SOPs, BMPs, and design features identified for the soils present, runoff and erosion would be reduced to an acceptable level. Further discussion about soils in general can be found in the AR FEIS Section 3.3 and 4.3, pages 3-22 – 3-33 and pages 4-16 – 4-19.

CUMULATIVE IMPACTS

In total, approval of the Proposed Action would add approximately **5 acres** of additional surface disturbance to the area.

Currently, there are twelve producing/permitted oil/gas wells (12 locations) and their associated access roads within a one-mile radius of the proposed project site. There are also two abandoned wells, one temporarily abandoned well, and one water well. Within Section 13 itself, this would be the only well either permitted or proposed. There are two livestock reservoirs, and local ranchers have mowed sagebrush in the area to provide increased grazing accessibility and forage for their livestock. GRMR has proposed eleven additional oil wells both within and around the Little Snake River Valley; however, these wells do not occur within the one mile radius of the proposed project site.

Currently, there are six abandoned wells, one temporarily abandoned well, one water well, one injection well, fourteen producing gas wells, and seventeen producing oil wells (approximately 160 acres) within a four-mile radius (32,170 acres); that radius is used by the Wyoming Game

and Fish Department to calculate density disturbance for GRSG in priority habitat of a proposed project. Three Carbon County Roads are within this radius of the proposed well pad and consists of approximately 320 acres. The existing two-track roads consist of approximately 26 miles. There are also thirty-four livestock reservoirs, three homesteads with outbuildings, three private out-buildings on ranches, hayfields, and part of the Dixon Airport within the radius. Local ranchers have used sagebrush mowing throughout the area to provide increased grazing accessibility and forage for their livestock. Of the proposed eleven additional oil wells, seven are within the radius. The existing well pads and improved roads account for 0.02% (480 acres) of habitat loss, not including the ranch-associated habitat loss or two-track roads, within the four-mile radius of the proposed well pad.

The proposed project, along with existing disturbance and reasonably foreseeable projects, would continue to fragment the habitat and displace wildlife species, potentially causing them to forage in less productive habitats. With increased fragmentation and habitat edges, species diversity and composition could change.

The singular effects on air quality values associated with the construction, drilling and completion, and operation of the proposed well are expected to be minimal. Cumulatively, air quality impacts analyzed for the Rawlins Resource Management plan (RMP) concluded that the cumulative impacts of developments in the region of influence – which includes oil and gas development – would increase emissions for all sources of carbon monoxide (CO), nitrogen oxides (NO_x), sulfur dioxide (SO_2), PM_{10}, and $PM_{2.5}$, but that these increases would not cause any exceedance of state or federal ambient air quality standards. It also concluded that although cumulative impacts to air quality values of visibility, atmospheric deposition, or ozone cannot be determined through the qualitative studies conducted for the RMP, air quality analyses from an energy development project (Desolation Flats Natural Gas Field Development Project EIS; 2004) suggest that RMP planning area activities could contribute to a significant impact on visibility in the Bridger, Fitzpatrick, Mount Zirkel, and Rawah Wilderness Areas. Similarly, the more recent Atlantic Rim Natural Gas Development Project EIS (2007; p. 5-7), found that there is a potential for cumulative visibility impacts to exceed visibility thresholds within PSD Class I Bridger Wilderness Area, and PSD Class II Popo Agie Wilderness Area and Wind River Roadless Area (40 CFR 52.21- Prevention of significant deterioration of air quality (PSD), identifies Class I and Class II areas that warrant special air quality protection measures). This is the most recent and available information the BLM has regarding cumulative air quality impacts within the RFO at this time.

The impacts of the proposed action in conjunction with existing and reasonably foreseeable oil and gas development projects would contribute to a slight change in the area that is already used for oil and gas production to an area exhibiting increased examples of human intrusion and occupancy. Visitors to the area would experience the slightly increased sights and sounds of industrial development.

Standard Operating Procedures (SOPs), Best Management Practices (BMPs), and Mitigation

BLM interdisciplinary review identified site-specific design features (see Appendix 1) that would be applied to the APD in addition to SOPs, BMPs, and mitigation measures found in the SUP and standard design features found in the APD and the PODs. After review of the impacts described above, no additional mitigation measures are proposed or necessary.

Reclamation

Interim reclamation would commence within six months (weather and wildlife stipulations permitting) of drilling completion, reducing the well pad to approximately a two acre production well site. All unneeded portions of the well site would be backfilled, leveled, re-contoured, reclaimed, and re-seeded with native vegetation. This includes pits, cut and fill, and soil stockpile areas. Total (final) reclamation would take place when the well(s) are no longer productive and are plugged and abandoned. The seed mix is located in the SUP and POD submitted by the operators. The goal of reclamation would be to establish species composition, diversity, structure, and total ground cover appropriate for the desired plant community. All reclamation standards and guidelines are located in the Wyoming State Reclamation Policy (IM-WY-2012-032), as well as in the Rawlins RMP (Appendix 36).

Upon the determination that the well is not, or no longer, productive and/or are plugged and abandoned, then final reclamation of the entire well pad and location, including access road(s) would take place in accordance with the operator's approved site-specific reclamation plan. Plans for reclamation are included in the well SUP, design features, and the site specific reclamation plans.

Persons/Agencies Consulted:

Name	Agency/Entity	Reason For Consultation	Outcome
David Hilliard	BLM Rawlins	NRS (Team Lead)	No Issues Identified
Kelly Owens	BLM Rawlins	Hydrology Issues	No Major Issues Identified
Anthony Bridger	BLM Rawlins	Wildlife Issues	GRSG habitat disturbance
David Hullum	BLM Rawlins	Recreation Issues	No Issues Identified
Michael Oberndorf	BLM Rawlins	Archaeology Issues	No Issues Identified
Andy Mowrey	BLM Rawlins	Reclamation and Soils Issues	No Issues Identified
Susan Foley	BLM Rawlins	Weeds Issues	No Issues Identified
John Sjogren	BLM Rawlins	Rangeland Issues	No Issues Identified
Megan Vasquez	BLM Rawlins	Civil Engineering Issues	No Issues Identified
Andrew Kauppila	BLM Rawlins	Petroleum Engineer Issues	No Issues Identified

Name	Agency/Entity	Reason For Consultation	Outcome
Mark Newman	BLM Rawlins	Geology/Paleontology Issues	No Issues Identified
Pamela Benn	BLM Rawlins	Realty Issues	No Issues Identified
Ben Smith	BLM Rawlins	Wild Horse and Burro Issues	No Issues Identified
Maureen Hartshorn	BLM Rawlins	Forestry Issues	No Issues Identified
Susan Foley	BLM Rawlins	Planning/Environmental Coordinator	No Issues Identified
Tony Mong	Wyoming Game and Fish Baggs, WY	Wildlife Issues	GRSG habitat disturbance
Linda Cope	Wyoming Game and Fish Cheyenne, WY	Wildlife Issues	GRSG habitat disturbance

LITERATURE CITED:

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Map1

Bulleit Federal 13-9

Legend

- Interstate
- Proposed Well Pad
- Proposed Access Road

N

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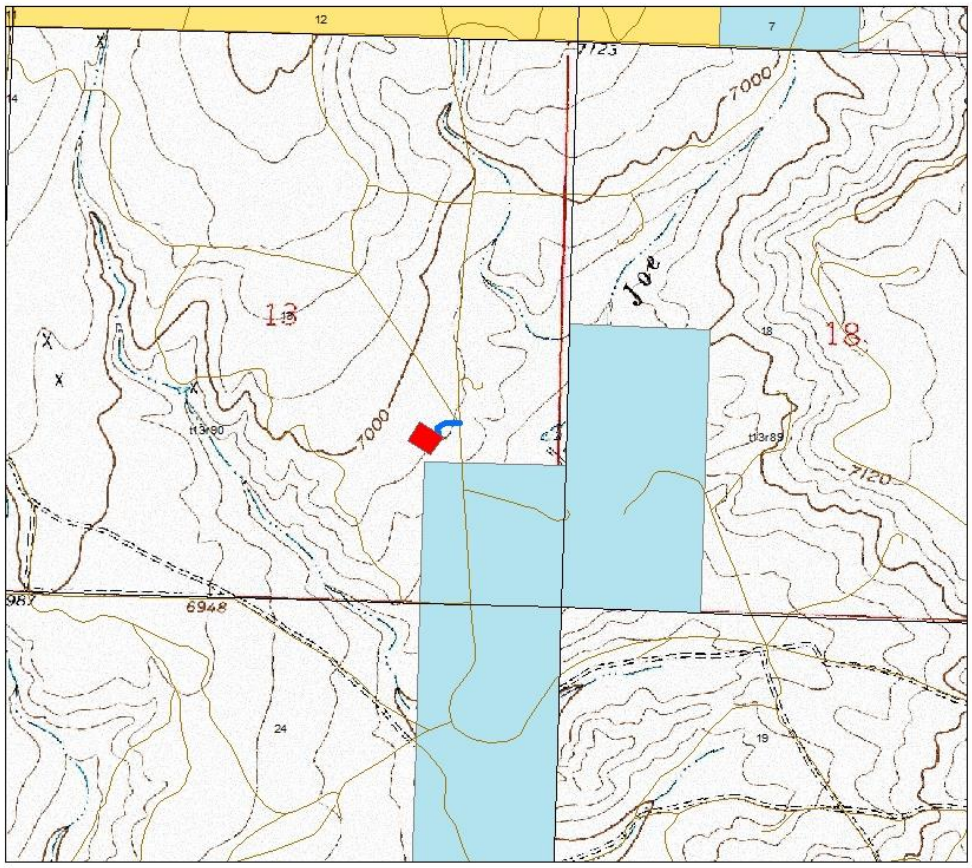
WYOMING



NO WARRANTY IS MADE BY THE BLM FOR USE OF THE DATA FOR PURPOSES NOT INTENDED BY BLM
APPROVED RAWLINS RESOURCE MANAGEMENT PLAN

Appendix 1

General Design Features

1. Approval of this Application for Permit to Drill (APD) does not warrant that any party holds equitable or legal title.

2. All lease exploration, development, construction, production, operations, and reclamation activity would be conducted in a manner which conforms to all applicable federal, state, and local laws and regulations.

3. All lease operations are subject to the terms of the lease and its stipulations, the regulations of 43 CFR Part 3100, Onshore Oil and Gas Orders, Notices to Lessees (NTLs), the approved APD, and any written instructions or Orders of the Bureau of Land Management (BLM) Authorized Officer (AO).

4. The approval of this APD does not grant authority to use off-lease federal lands. Facilities approved by this APD and/or Sundry Notices that are no longer included within the lease, due to a change in the lease or unit boundary would be authorized with a right-of-way. Similarly, should unit or lease boundaries change during the life of the project, the Operator would be responsible for acquiring necessary rights-of-way for affected facilities. Failure to do so may cause the operation to be shut-in.

5. This permit would be valid for a period of two years from the date of APD approval or until lease expiration or termination, whichever is sooner. APD extensions may be requested and granted for up to two additional years, but not to exceed a total sum of four years from the initial APD approval date. Should a permit extension be requested, it must be submitted prior to the permit expiration date via a Sundry Notice (Form 3160-5) to the AO for approval. If the permit terminates, any surface disturbance created under the application would be reclaimed in accordance with the approved reclamation plan found herein.

6. The Operator would submit a Sundry Notice (Form 3160-5) to the AO for approval prior to beginning any new surface-disturbing activities or operations that are not specifically addressed and approved by this APD.

7. The Operator may submit to the AO's Representative written requests (including documentation, supporting analysis and an acceptable plan for mitigation of anticipated impacts) for exception, waiver, or modification to this approved APD, associated design features, or other requirements. Such written approval would be obtained prior to commencement of operations that cause any deviation from the approved APD and associated limitations. Emergency approval may be obtained orally, but such approval would not waive the written reporting requirement.

8. At **least 48-hours prior to** beginning any APD related construction (e.g. access road, well pad, pipeline) and/or reclamation activities (e.g. dirt-work, seeding) the operator would notify the BLM via internet notice.

9. All construction of the well pad, flare pit, reserve pit, roads, flow lines, production facilities, and all associated infrastructure on federal lands would be monitored onsite by a licensed professional engineer OR designated qualified inspector (to be named at the time of construction notification) who would serve as the Operator's Compliance Coordinator to ensure construction meets the BLM-approved plans.

10. Within **24-hours** of spudding the well, the spud date would be submitted to the BLM via internet notice. A follow up report on Form 3160-5 confirming the date and time of the actual spud would be submitted to this office within 5 working days from date of spud.

11. At **least 24-hours in advance** of all BOP tests, running and cementing all casing strings (other than conductor casing), pluggings, DST's and/or other formation tests, and drilling over lease expiration dates, notification would be submitted to the BLM via internet notice.

12. The operator would submit a production facility layout (Onshore Order 1, Section III. D.4.d. and D.4.i., or Section VIII. A.) for approval (prior to construction) which includes permitted location boundaries, production facility placement, access road inlet, and cut/fill slopes.

13. A site facility diagram (Onshore Order 3, Section III. I. and 43 CFR 3162.7-5(d)) for the purpose of a site security plan (Onshore Order 3, Section III. H. and 43 CFR 3162.7-5(c)) would be filed no later than 60 calendar days following first production.

14. Use of any tank heater/burners in production storage tanks must be approved prior to installation and/or use by the AO. Failure to obtain approval for installation/use of tank heater/burners in any production storage tanks may result in a Written Order (WO), Incidence of Non-compliance (INC), assessments and potentially a Shut-In Order.

15. No below or partially below ground fluid storage/containment tanks or vessels are to be used without prior approval of the AO. Below or partially below ground fluid storage/containment tanks or vessels would require systems for the prevention, containment, detection, and monitoring of any below ground leakage (e.g. secondary containment and leak detection/monitoring systems, etc.) A production facility layout depicting the proposed vessel construction and installation/location must be submitted for prior approval via APD or Sundry. As applicable, all subsurface vessels must comply with the Wyoming Storage Tank Act of 2007 (W.S. 35-11-14-29) and/or the Wyoming DEQ Underground Injection Control (UIC) Program.

Operations

Upon request, the Operator must be prepared to provide copies of applications for, and approved copies of, federal, state, and local operating permits.

1. All survey monuments found in the area of operations would be protected. Survey monuments include, but are not limited to: General Land Office and BLM Cadastral Survey Corners, reference corners, witness points, U.S. Coastal and Geodetic benchmarks and

triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments. In the event of obliteration or disturbance of any of the above, the Operator would immediately report the incident, in writing, to the AO and the respective installing authority if known. Where General Land Office or BLM Right-of-Way monuments or references are obliterated during operations, the Operator would secure the services of a registered land surveyor or a BLM cadastral surveyor to restore the disturbed monuments and references using surveying procedures found in the "Manual of Surveying Instructions for the Survey of the Public Lands in the United States," latest edition. The Operator would record such survey in the appropriate county and send a copy to the AO. If the Bureau cadastral surveyors or other federal surveyors are used to restore the disturbed survey monument, the Operator would be responsible for the survey cost.

2. If any cultural values [sites, artifacts, human remains] are observed during operation of this lease/permit/right-of-way, they would be left intact and the AO notified. The AO would conduct an evaluation of the cultural values to establish appropriate mitigation, salvage or treatment. The Operator would be responsible for informing all persons in the area who are associated with this project that they would be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the Operator would immediately stop work that might further disturb such materials, and contact the AO. Within seven (7) days after the operator contacted the BLM, the AO would inform the Operator as to: whether the materials appear eligible for the National Register of Historic Places; the mitigation measures the Operator would likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and, a time-frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate. The AO would provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the Operator would then be allowed to resume construction measures.

   The Operator would be responsible for informing all persons associated with this project that they would be subject to prosecution for damaging, altering, excavating or removing any archaeological, historical, or vertebrate fossil objects or site. If archaeological, historical, or vertebrate fossil materials are discovered, the Operator would suspend all operations that further disturb such materials and immediately contact the AO. Operations would not resume until written authorization to proceed is issued by the AO.

   The Operator would be responsible for the cost of any mitigation required by the AO. The AO would provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the Operator would be allowed to resume operations.

3. If paleontological resources, either large or conspicuous, and/or of a significant scientific value are discovered during construction, the find would be reported to the AO immediately. Construction would be suspended within 250 feet of said find. An evaluation of the paleontological discovery would be made by a BLM-approved professional paleontologist

within five (5) working days, weather permitting, to determine the appropriate action(s) to prevent the potential loss of any significant paleontological values. Operations within 250 feet of such a discovery would not be resumed until written authorization to proceed is issued by the AO. The Operator would bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operation.

The Operator would be responsible for informing all persons associated with this project that they would be subject to prosecution for damaging, altering, excavating or removing any archaeological, historical, or vertebrate fossil objects or site. If archaeological, historical, or vertebrate fossil materials are discovered, the Operator would suspend all operations that further disturb such materials and immediately contact the AO. Operations would not resume until written authorization to proceed is issued by the AO.

Within five (5) working days, the AO would evaluate the discovery and inform the Operator of actions that would be necessary to prevent loss of significant cultural or scientific values.

The Operator would be responsible for the cost of any mitigation required by the AO. The AO would provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the Operator would be allowed to resume operations.

4. If any dead or injured threatened, endangered, proposed, or candidate animal species is located during construction or operation, the U.S. Fish and Wildlife Service's Wyoming Field Office (307-772-2374), its law enforcement office (307-261-6365), and the BLM Rawlins Field Office (307-328-4200) would be notified within 24 hours. If any dead or injured sensitive species is located during construction or operation, the Rawlins Field Office would also be notified within 24 hours.

5. Operators and Operator's sub-contracted personnel would not intentionally harm or harass wild horses, other wildlife, or domestic livestock.

6. ROW, mineral lease, mining claim, and permit holders would monitor and control noxious and invasive weeds, according to an approved weed management plan, on project-disturbed areas and native areas infested as a direct result of the project. The control methods would be in accordance with guidelines established by the EPA, BLM, state and local authorities. Prior to the use of pesticides, the Operator should obtain written approval from the AO - meaning an approved Pesticide Use Proposal form - showing the type and quantity of material(s) to be used, pest(s) to be controlled, and method of application. Copies of daily Pesticide Application Records (required by the State of Wyoming) and Summary Herbicide Use Reports are due monthly to the BLM AO-Weed Coordinator.

7. The Operator would be responsible for the prevention and suppression of fires on public lands caused by its employees, contractors, or its subcontractors. During conditions of extreme fire danger, surface use operations may be either limited or suspended in specific areas, or additional measures may be required by the AO. Should a fire occur, it would be

immediately reported to this office by calling 307-328-4200, and notifying the Fluid Minerals staff.

8. Emissions of particulate matter from well pad, road, and other facility construction, operation, and reclamation activities would be minimized by application of water or other dust suppressants. Dust inhibitors (surfacing materials, dust suppressants, and water) would be used as necessary on locations that present a fugitive dust problem. The use of chemical dust suppressants on public surface would require prior approval from the AO.

9. If groundwater or permeable/porous subsoil or bedrock is encountered upon construction of the pad or pits, or upon drilling and completing shallow holes for surface conductor, rat/mouse holes, or water supply well, the Operator must immediately notify the AO's Representative before proceeding.

10. The Operator would comply with the Hazardous Materials Management Plan/Summary in the RMP ROD (Appendix 32) and/or the appropriate EIS ROD, including requirements to transport, store, utilize, and dispose of hazardous substances. The Operator would maintain a hazardous substances release contingency plan that would include, among other things, provision to notify the AO in the event of any release of hazardous substances associated with project operations. Treatment chemicals may require additional storage and containment measures and facilities depending on chemical classification and hazard.

11. If a portable sewage treatment facility is moved onto location, the well/lease Operator would provide the BLM AO a copy of the facility Operator's notification letter to the Wyoming Department of Environmental Quality. Facility operations would comply with BLM requirements, including unauthorized discharge notification and reclamation of disturbed surfaces.

12. Only those hazardous wastes that qualify as exempt, under the Resource Conservation and Recovery Act (RCRA), Oil and Gas Exemption, may be disposed of in the reserve pit. Generally, oil or gas wastes are exempt if they 1) have been sent down hole and then returned to the surface during oil/gas operations involving exploration, development, or production, or 2) have been generated during the removal of produced water or other contaminants from the oil/gas production stream. The term hazardous waste, as referred to above, is defined as a listed (40 CFR 261.31-33) or characteristic (40 CFR 261.20-24) hazardous waste under RCRA.

13. Any spilled or leaked oil, produced water or treatment chemicals must be reported in accordance with NTL-3A and immediately cleaned up in accordance with BLM requirements. This includes clean-up and proper disposition of soils contaminated as a result of such spills/leaks. The Operator would segregate, treat, and/or bio-remediate contaminated soil materials as authorized via Sundry Notice (Form 3160-5) or dispose of contaminated soils at a permitted waste facility. Treatment chemicals may require additional storage and containment measures and facilities depending on chemical classification and hazard.

14. The Operator would install an identification sign consistent with the requirements of 43 CFR 3162.6 immediately upon completion of the well pad/location construction operations.

15. The Operator would contain and remove all debris, unused equipment, and other waste materials not needed for production. Waste materials would be disposed of at an approved disposal facility.

16. Upon APD expiration, it is the responsibility of the Applicant/Operator to see that all stakes, flagging, posts or other materials placed on the locations and/or access roads, pipelines and associated rights-of-way are removed. The Operator must immediately cease all operations associated with preparing to drill the well and begin final reclamation activities of all APD related disturbance, pursuant to the approved APD design features and to be completed within 6 months of the APD expiration date.

Site Specific Design Features (Recommendations)

1. Construction, drilling, reclamation, and other activities potentially disruptive to wintering wildlife are prohibited during the period of Nov 15 to Apr 30 for the protection of big game winter habitat.

2. Construction, drilling, reclamation, and other activities potentially disruptive to grouse are prohibited during the period of March 1 – July 15 within 2 miles of occupied Greater Sage-Grouse leks and identified grouse nesting and early brood rearing habitats.

3. If production facilities are needed, facilities would be placed as close to the entrance of the well pad (where access road ties into the well pad) and would be placed on grade or cut portions of the pad.

4. To minimize the potential for the introduction of new weeds, the operator shall thoroughly power-wash construction equipment, including the under-carriage, before transporting them to the project area. If portable wash units are utilized, waste water shall only be disposed of at a previously approved facility/location. Compressed air shall not be used as a method for cleaning equipment.

5. Prior to the completion of interim reclamation, and prior to seeding, the operator would again sample and test soils for suitable surface and subsurface physical, chemical properties (pH, EC, Texture). These tests are to be used by the operator for comparison of the pre-reclamation soils with pre-disturbance soils and evaluation of the suitability of the soils or seedbed for seed germination and vegetative success under the proposed reclamation plan.

6. Prior to the completion of interim and final reclamation and seeding, the Operator would submit to the BLM Authorized Officer, via Sundry Subsequent Report (Form 3160-5), the results of all vegetative and soils surveys and tests. Should pre-disturbance and interim/final reclamation test results differ to the extent that seed mix modifications or soil amendments are required to achieve the desired ecological community, the Operator would then submit a revised reclamation plan via Sundry Notice of Intent (Form 3160-5). The Sundry Notice of

intent would outline any proposed soil amendments, treatments, additives or modifications, seed mix changes, and other necessary revisions to the reclamation plan and procedures.

7. Reclamation and restoration efforts including seeding/re-vegetation, invasive plant control/treatment, and soil stabilization and erosion prevention would be monitored (for success or failure) and reported by the Operator to the BLM Authorized Officer. Monitoring and reporting would be in accordance and consistent with the Wyoming State Reclamation Policy, RFO RMP Record of Decision and Appendix 36, and the field/project level EA/EIS, as applicable. The reclamation plan including procedures for seeding/re-vegetation and weed control (via the weed management plan) would be modified and revised as necessary and required to achieve desired results and requirements.

Construction

1. All facilities on location that have the potential to leak/spill oil, glycol, methanol, produced water, condensate, or other fluids which may constitute a hazard to the environment, public health or safety (including, but not limited to, drain sumps, sludge holdings, and chemical containers), would be within secondary containment, impervious to those fluids, exclusive of wildlife and livestock, with animal/bird escape capability, and able to contain a minimum of 110% of the volume of the largest storage vessel, respective to content, or 100% with at least one foot of freeboard, whichever is greater, so that any spill or leakage would not drain, infiltrate, or otherwise escape to ground water, surface water, or navigable waters before cleanup can be completed (within 72 hours).

2. Construction over and/or immediately adjacent to existing pipelines would be coordinated, and in accordance with, the relevant pipeline companies' policy.

3. Fencing would be installed around produced water, oil, and condensate tank batteries in order to help maintain the integrity of the surrounding containment structure and to prevent livestock and wildlife from entering the area in case of a leak or spill.

4. All open vent stack equipment would be designed and constructed to prevent entry by birds and bats and to discourage perching.

5. The immediate repair/replacement (to BLM standards) of any range infrastructure breached, altered, or damaged by construction, drilling, or operation activities related to this APD would be the responsibility of the Operator. All fence relocations would be in accordance with BLM approval.

6. Construction, maintenance, and reclamation operations with frozen material or during periods when the soil material is saturated is expressly prohibited. If equipment, including licensed highway vehicles, creates ruts in excess of four (4) inches deep, the soil would be deemed too wet to adequately support maintenance and/or heavy equipment.

7. Accumulated snow present on the ground at the outset of construction, maintenance, or reclamation activities would be removed before the soil is disturbed and piled downhill

and/or downwind from the disturbed area. Equipment used for any non-construction snow removal operations would be equipped with 6" shoes to ensure blades do not remove topsoil or vegetation. Written approval must be obtained before snow removal related to a federal action but outside of designated disturbance areas is undertaken. When blading/removing snow, drifts/berms would be constructed with a gap of 20-30 yards every ¼ mile, to allow unobstructed movement of wildlife, livestock and human activities.

8. Clearly remove, segregate, and delineate from all other spoils, all available topsoil from constructed locations and surface disturbances including areas of cut and fill. Stockpile and clearly identify topsoils at the site for use in reclamation on all areas of surface disturbance (well pads/locations, roads, pipelines, etc.).

9. Plugs or embankments providing wildlife with access out of and across open pipeline trenches would be installed, at minimum, every 1320 linear feet along open pipeline trenches.

10. No construction and/or reclamation would block or change the natural course of any drainage, nor would topsoil, waste, or fill material be deposited below high water lines in riparian areas, flood plains, or in natural drainage ways. The lower edge of soil or other material stockpiles would be located outside active floodplains. All spoils would be placed where they can be retrieved without creating additional surface disturbance and where they do not impede and/or contribute sediment to watershed and drainage flows. The Operator would also reconstruct and stabilize stream channels, drainages, and ephemeral draws to exhibit similar hydrologic characteristics that were found in stable, naturally occurring and functioning systems.

11. Drainage and runon/runoff would be diverted away from all new construction naturally or through the use of spoil material to create berms. All drainage structures would approximate topographic contour lines, have a grade no greater than 0.5 - 1 percent, would release water onto natural undisturbed ground without causing additional accelerated erosion. The use of riprap or other armoring to prevent erosion may be necessary (BLM Manual 9113). Drainage structures would not discharge directly into/onto natural drainages/channels. Water-bars, waddles, hay bales, and/or silt fences would be used as needed to reduce surface runoff velocity and promote upland sediment deposition, thus reducing drainage/channel sedimentation and erosion.

12. Silt fences, if needed, would be installed after topsoil removal and before pad leveling begins and must remain in place until interim reclamation is complete and there is adequate vegetation present to stabilize the soil. Silt fences would be constructed in locations where surface erosion is evident or potential for surface erosion exists such as areas of steep slopes or highly erosive soils. Fences would be installed at the inside edge of disturbance.

13. Silt fences would be constructed using metal posts that are at least 5 feet long with at least 2 feet in the ground (3 feet above ground) with 8 feet spacing if a wire re-enforcement backing is used or 6 feet spacing if no wire backing is used. The fabric is to be toed into the ground at the base of the fence a minimum of 8 inches deep and an 18 inch overlap is required when splicing two fences together. The fabric is to be installed on the uphill side of the metal posts

and attached to the posts at least every 6 inches along the length of the post. Silt fences are to be inspected at least once a month or 48 hours after a rain storm event. If holes in the fence or undercutting of the fence are found, repair is required within 48 hours of discovery. When silt accumulates to a height equal to two-thirds the height of the fabric, the silt is to be cleaned out and deposited on the excess spoils pile.

14. Sediment fences, straw wattles, erosion mats, and/or hay bales should be used to minimize erosion and sediment transport on disturbance area.

15. If temporary surface pipelines, as authorized by the AO, are used to transport water, they would be placed/removed when the ground surface is dry. Surface blading prior to line placement is prohibited. The pipelines must be removed within 30 days after well completion (or determination of inactivity).

16. Construction control stakes would be placed as necessary to ensure construction of the well pad, topsoil stockpile, spoil pile, and outer limits of the area to be disturbed in accordance with the specifications outlined in the APD. The Operator would assume full responsibility for protecting all stakes and offsetting any additional stakes or grades which may be necessary.

17. Cathodic protection wells would be drilled on the existing well pad, placed so as not to interfere with re-contouring of cut and fill slopes during interim reclamation, designed and constructed to prevent commingling and contamination of water aquifers. The AO would be notified of any water flows at surface and the problem would be resolved promptly.

Roads

1. All access roads and drainage control structures, whether existing or newly-constructed, would be both constructed to resource road standards and regularly maintained in a safe and usable condition as outlined in BLM Manual, Section 9113. A regular maintenance program may include, but is not limited to, blading, ditching, culvert installation, dust control, and gravel surfacing or other activities as specified by the AO. The Lessee and/or Operator would enter into a maintenance agreement with all other "authorized users" of the common access road(s) to the well site. The costs of road maintenance in dollars, equipment, materials, labor, and other related expenses would be shared proportionally among the "authorized users." Upon request, the AO would be provided copies of any maintenance agreement or agreements.

2. All Operators and Operator’s representative vehicles are restricted to authorized travel routes only and would not use any other access route, e.g.; two-track roads, trails, and pipeline rights-of-way to access the drill/well pad and any ancillary facilities.

3. Two-track roads would not be cut-off as a direct result of construction, maintenance, or reclamation of the well access road or associated well facilities, unless authorized by the BLM.

4. Prior to construction, road(s) would be surveyed and staked with construction control stakes set continuously along the centerline at maximum 100-foot intervals (less where needed to be inter-visible) and at all tangent and curve control points, fence or utility crossings, and culverts. In addition to centerline stakes, slope stakes would be placed at the top of the cut and the bottom of the fill for those portions of the road that are engineered.

5. Before proposed road construction activities begin, the topsoil must be bladed to the side of the road and stockpiled. The topsoil stockpile would be contoured so as to prevent water ponding or flow concentration. Once the borrow ditch and the cut slopes are constructed, cleared vegetative material and topsoil that is windrowed would be spread back onto the cut/fill slopes of the road, removing any windrows or berms remaining at the edge of the road.

6. The minimum travel-way width of the immediate access road would be 14 feet with turnouts at least 10 feet in width. No structure would be allowed to narrow the road top. The inside slope would be 4:1. The bottom of the ditch would be a smooth V with no vertical cut in the bottom. The outside slope would be 2:1 or flatter. After the road is crowned and ditched with a .03 - .05 ft/ft crown the topsoil and windrowed vegetative material would be pulled back down on the cut slope so there is no berm left at the top of the cut slope. Turnouts would be spaced at a maximum distance of 1000 feet and would be intervisible. If the access road crosses a floodplain, the ditch would be flat-bottomed so as to provide material to raise the road, unless otherwise approved by the AO.

7. If soils along the access road route are dry during road construction, use, and/or maintenance, fresh water would be applied to the road surface to facilitate soil compaction and minimize soil loss as a result of wind erosion.

8. Construction and surfacing of the new access road would be complete prior to moving drilling equipment onto the well pad and the presence of heavy vehicular traffic. Compact the top foot of sub-grade in even six (6) to eight (8) inch lifts to established standards, adding water as needed for compaction. Surface with an appropriate grade of gravel to a minimum depth of four (compacted) inches.

9. All cattle guards would be designed and maintained consistent with BLM standards and would be a minimum of 16 feet wide and 8 feet long; set on either timber, pre-cast concrete, or cast-in-place concrete bases at right angles to the roadway; have an adjacent 16 foot wide bypass gate; not narrow the road surface; and have fence and end panels on either side constructed using 3 posts with braces.

10. All culverts would be a minimum of 18 inches in diameter. Culverts would have a minimum of 12" of fill or 1/2 the pipe diameter, whichever is greater, placed on top of the culvert, and would be of length sufficient to allow at least 12” of culvert to extend beyond the toe of any slope. The inlet and outlet would be set on grade. No rocks would be used in the bed material and no rocks greater than 2" in diameter would be immediately adjacent to the culvert. The entire length of pipe would be bedded on native material before backfilling, which would be completed using unfrozen material and rocks no larger than two inches in diameter; compact

the backfill evenly in 6" lifts on both sides of the culvert. A permanent marker would be installed at both ends of the culvert to help prevent traffic from damaging the culvert. Additional culverts would be placed in the new access road as the need arises or as directed by the AO.

11. Wing-ditches would be staked and constructed at a slope of .5 to 1.0 percent down slope unless otherwise approved by the AO. All wing/drainage ditches and culverts would be kept clear and free-flowing, and would also be maintained in accordance with the original construction standards. Drainage structures would not discharge directly into/onto natural drainages/channels, and/or use riprap or other armoring to protect from erosion (BLM Manual 9113).

12. Low water crossings would be constructed perpendicular to the channel and at original channel elevation in a manner that would not block or restrict existing channel flow. Excavated material would be stockpiled for use in reclamation of the crossings.

13. Existing pipe infrastructure in the access road area should follow specs for fill under item 10 for culverts. A minimum of 12" of fill should be placed over pipes that must be crossed by the road. In areas where 12" of fill cannot be achieved, existing pipe should be encased in steel to protect the pipe, at least twice the diameter of the existing pipe.

Pits

1. All oil and gas pits that could contain fracture/stimulation fluids, recycled pit fluids, or produced water, except those only containing fresh-water based constituents, are required to be lined with an impermeable (12 mil minimum with a permeability less than or equal to $1x10^{7}$ cm/sec) liner. The liner would be physically and chemically-compatible with all substances which it may contact and would be of sufficient strength and thickness to withstand normal installation and use, and installed so that it would not leak. The liner would be installed over a smooth sub-grade, matting, or fill materials (e.g. sifted dirt, sand, or bentonite) free of pockets, loose rocks, and other objects that could damage the liner.

2. The only fluids/waste materials which are authorized to go into reserve pits are RCRA-exempt exploration and production wastes. Any evidence of RCRA non-exempt wastes being put into the reserve pit may result in the BLM Authorized Officer requiring specific testing and closure requirements.

3. All pits are required to maintain a minimum of 2 feet of freeboard between the liquid level and the top of the liner. If operations cause fluid levels in pits to rise above the required freeboard, immediate notification would be provided to the AO with concurrent steps taken to cease the introduction of additional fluids, until alternative containment methods can be approved.

4. Flaring of gas into the reserve or completion pits would not be allowed without prior approval from the AO.

5. All pits would be kept free of trash, debris, solid wastes, and other unauthorized waste materials including oil and liquid hydrocarbons.

6. For the protection of livestock and wildlife, all pits and open cellars would be fenced on all sides, with corner bracing, immediately upon construction. Reserve, flare, completion, and production pits would be adequately fenced during and after drilling operations until pits are reclaimed so as to effectively keep out wildlife and livestock. Operator would, within 48 hours of discovery, remove any floating hydrocarbons from pit surface or install netting over the pit. Approved netting (mesh diameter no larger than one inch) is required over any pit that contains or is identified as containing hydrocarbons or hazardous substances (per RCRA 40 CFR Part 261 or CERCLA Section 101(14) (E)).

7. Pits would be dried, backfilled, and closed within six (6) months from well completion (total depth) or well plugging. Pits must be void of all free fluids prior to backfilling. Pit trenching or squeezing is prohibited. Pits may be dewatered/dried in the following manner: natural evaporation, mechanical aeration, and/or hauled to an approved DEQ disposal site. The installation/operation of any sprinklers, misters, aerators, pumps, hoses, and related equipment would ensure that water spray or mist does not drift outside of the pit. All other dewatering/drying, removal or disposal methods not listed in the APD and or Design features would have prior written approval from the AO.

8. Pits, once dry, would be backfilled and compacted with a minimum cover of at least three (3) feet of soil, void of any topsoil, vegetation, large stones, rocks or foreign objects. The pit area would be mounded to allow for settling and to promote positive surface drainage away from the pit. Before backfilling synthetically lined reserve pits, those liner portions remaining above the "mud line" would be cut off as close to the top of the mud surface as possible and disposed of at an approved solid waste disposal facility. The pit bottom and remaining liner would not be trenched, cut, punctured, or perforated.

Reclamation

1. By March 1 of each year the operator would report and submit annual surface disturbance and reclamation data for the previous calendar year, utilizing the BLM Rawlins Field Office Disturbance (As-Built) and Reclamation Database. Monitoring and reporting would be in accordance and consistent with the Wyoming State Reclamation Policy, RFO RMP Record of Decision (ROD) and Appendix 36, and the field/project level EA/EIS, as applicable. The Rawlins Field Office surface disturbance and reclamation database, as well as information on the database and submission of the data, is available at the following web address: http://www.blm.gov/wy/st/en/field_offices/Rawlins/oil_and_gas.html, or by contacting the Rawlins Field Office, Minerals and Lands, Supervisory Natural Resource Specialist/Physical Scientist at 307-328-4200 for further information.

2. Reclamation earthwork for interim and/or final reclamation would be completed within 6 months of well completion or well plugging (weather permitting) including unnecessary access roads and pipeline right(s)-of-way, and would consist of: 1) backfilling pits, 2) re-contouring and stabilizing the well site, access road, cut/fill slopes, drainage channels, utility

and pipeline corridors, and all other disturbed areas, to approximately the original contour, shape, function, and configuration that existed before construction (any compacted backfilling activities would ensure proper spoils placement, settling, and stabilization), 3) surface ripping, prior to topsoil placement, to a depth of 18-24 inches deep on 18-24 inch centers to reduce compaction, 4) final grading and replacement of topsoil, 5) surface-roughening and other techniques such as snow fencing to increase soil moisture retention and reduce compaction (all surface soil material would be pitted or roughened such that the entire reclamation area would be uniformly covered with depressions constructed perpendicular to the natural flow of water and/or prevailing wind), and 6) seeding in accordance with reclamation portions of the APD and these Design features.

3. Temporary fencing of the reclaimed well/facilities locations for the first two to four growing seasons after either interim or final seeding may be required to exclude livestock and wildlife and to help ensure better re-vegetation success. Similarly, off-road vehicle prevention measures would be employed on reclaimed locations.

4. Any subsequent re-disturbance of interim reclamation would be reclaimed within six (6) months by the same means described herein.

5. A Notice of Intent to Abandon (Form 3160-5) must be submitted and approved prior to any well abandonment activities. A joint inspection of the disturbed areas may be required and attended by the BLM and the Operator (or Operator's Designee), the primary purpose of which is to review and agree to the existing (or a new) abandonment and/or final reclamation plan. Earthwork must commence and be completed within six (6) months from the date of plugging and abandonment and seeding no later than the next immediate growing season upon the completion of earthwork. All reclamation should be accomplished as soon as possible after the disturbance occurs; with efforts continuing until the criteria for reclamation success has been met.

6. The Operator would submit a Final Abandonment Notice (FAN), using Form 3160-5, to the AO when the criterion for reclamation success has been met on the surface-disturbed. This FAN indicates that the Operator believes the location is considered ready for final inspection, with adequate vegetation cover and species diversity. Upon receipt of the FAN, the BLM would conduct a field inspection prior to releasing the bond liability for this location.

7. Re-vegetation would consist of species occurring in the surrounding natural vegetation and/or included in the approved seed mix as deemed desirable by the BLM or private surface owner in review and approval of the reclamation plan. Inter-seeding, secondary seeding, or staggered seeding may be required to accomplish re-vegetation objectives. The seed mixture(s) would be planted in the amounts specified in pounds of pure live seed (PLS)/acre. There would be no primary or secondary noxious weed seed in the seed mixture. Seed would be tested and the viability testing of seed would be done in accordance with State law(s) and within 9 months prior to purchase. Commercial seed would be either certified or registered seed. The seed mixture container would be tagged in accordance with State law(s) and available for inspection by the AO. Seed would be broadcast if drilling is not possible. When broadcasting the seed, the pounds per acre are to be doubled. The seeding would be repeated

until a satisfactory stand is established as determined by the AO.

8. Evaluation of growth and success would be conducted as per RMP ROD (Appendix 36). The site would also comply with additional management needs, including control of weed infestations. Success criteria as defined by the RMP is: criteria based on pre-disturbance surveys or surveys of adjacent undisturbed natural ground cover and species composition (which the Operator would do prior to disturbance) or eighty percent of pre-disturbance ground cover, ninety percent dominant species, no noxious weeds, and erosion features equal to or less than surrounding area. The AO reserves the right to require a revaluation of the reclamation success of the disturbances and determine if reseeding is necessary.

9. All practicable measures would be utilized to minimize erosion and stabilize disturbed soils on or adjacent to the disturbed and reclaimed area. There would be no evidence of mass-wasting, head-cutting, large rills or gullies, down cutting or overall slope instability. Should the use or storage of hay, straw, or mulch be necessary, the Operator is required to use certified weed-free hay, straw, and mulch on BLM lands.

10. Any topsoil to be stockpiled for longer than one year would be spread in layers not to exceed 2 feet maximum thickness and appropriately identified/signed as topsoil. These soil stockpiles would be seeded with a prescribed seed mixture or sterile cover crop (approved by the AO) and covered with mulch to reduce erosion and discourage weed invasion.

Fluids

1. All storage, removal and disposal of produced water must be in accordance with and comply with Onshore Oil and Gas Order No. 7. Produced water must be disposed of at a permitted off-site commercial disposal facility, unless approved otherwise by the BLM AO. The onsite storage/disposal of produced water, in open pits, tinhorns, sumps, etc., is not authorized except as follows: 1) produced water from the well subsequent to drilling may be disposed of in the approved well site reserve pit (for up to 90 days), and/or 2) used for well drilling or completion, upon prior written approval from the AO via approved APD or Sundry. Produced water may be transported and used for drilling/completion operations from approved fee, state, or federal wells/leases to federal wells/leases within the developed field/unit and/or EIS area, subject to WOGCC and BLM approval.

2. Pit drilling fluids may be transferred from a reserve pit at an approved federal well location to a lined reserve pit at another approved federal well location, for the purpose of drilling the well. Transfer/reuse would only be permitted when transfer is by a lease operator from one or more pits to another pit or pits on the operator's federal lease/unit or adjacent federal lease. Unless approved by this APD, the transfer and reuse of pit drilling fluids would require prior written approval from the AO, via a Sundry Notice (Form 3160-5).

3. The AO may authorize the use of produced water or reuse of pit drilling fluids for drilling when: 1) surface casing has been set with fresh water through any and all possible fresh water zones, 2) use is for drilling/completion only, and 3) the receiving pit is lined.

4. Pit fluids may be transferred by a lease operator from one or more pits to another (lined) pit or pits on the operator's federal lease/unit or adjacent federal lease, for the purpose of fluid consolidation and mechanical/chemical drying and disposal. The 6 month pit closure requirement would apply. Unless approved by this APD, the transfer of pit fluids for consolidation/disposal would require prior written approval from the AO, via a Sundry Notice (Form 3160-5).

5. Initial operator requests for the transport and use/reuse of produced water or pit drilling fluids or the transfer/consolidation of pit fluids would include: 1) the potential locations/leases in which fluids are to be transferred to and from, and 2) the potential quantity to be moved. Requests would be submitted for prior written approval from the AO via APD or Sundry Notice. Upon completion of transport, use/reuse or consolidation, the specific information on leases, units or locations and quantities transferred would be submitted to the AO, via Sundry Subsequent Report. Transportation of fluids would be along approved haul routes and authorized right-of-ways. Temporary surface pipelines may be authorized by the AO for the transfer of fresh water only, and NOT for produced water or pit fluids.

6. Drilling water sources/supplies or any changes to drilling water sources/supplies, the fate of drilling/completion fluids, routes and means of fluid transportation/disposal, and location or method of produced water disposal requires prior written approval from the AO via approved APD, Sundry Notice or Right-of-Way (ROW) as applicable.

7. The drilling of water wells on federal lands would require prior BLM approval via APD, Sundry, or ROW as applicable, in addition to State Engineer Office (SEO) approval.